

Evaluation of Nonresponse Followup - Whole Household Usual Home Elsewhere Probe

FINAL REPORT

This evaluation reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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U S C E N S U S B U R E A U

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EXECUTIVE SUMMARY

Purpose of the Whole Household Usual Home Elsewhere probe

The Whole Household Usual Home Elsewhere probe is a questionnaire coverage improvement item used to determine if all members of a household on the day of the interview have another residence where they live most of the time (their Census Day address). This probe is accomplished by implementing a set of screening questions on the Simplified Enumerator Questionnaire. In cases where a household indicated that all household members had another residence where they lived most of the time, we completed a blank unlabeled Simplified Enumerator Questionnaire for their Census Day address or “usual residence”. This questionnaire was used to ensure a complete and accurate enumeration at the address of the usual residence.

Whole Household Usual Home Elsewhere census returns

A total of 151,775 questionnaires were completed for Whole Household Usual Home Elsewhere households for their usual place of residence. Of these returns, 58,027 matched to an existing address on the Decennial Master Address File. Another 55,286 returns were geocoded but not matched to an existing address. Of these 55,286 returns only 606 were geocoded in time to be sent to the Field Verification operation. Most of the remaining 54,680 returns were added to the census but not included in the Field Verification operation. For the 606 returns that were geocoded and sent to Field Verification, 273 were verified, 271 were deleted, 59 were duplicates, and results were not reported for three returns. Finally, 38,462 returns could not be geocoded or matched to an existing address.

Housing unit status for Whole Household Usual Home Elsewhere addresses

There were 55,987 Whole Household Usual Home Elsewhere addresses that were enumerated by another procedure (that is, we received another return for that address). More than 14 percent of these were reported to be vacant or non-existent (delete) on Census Day. There were 54,915 addresses that were not enumerated by another procedure. The respondent for nearly 62 percent of these addresses was a neighbor or other proxy compared with only about 32 percent for addresses enumerated by another procedure. More than 71 percent of the addresses not enumerated by another procedure were reported as vacant. For more than 76 percent of these vacant addresses the respondent was a neighbor or other proxy.

Persons added to the census

There were 113,991 data defined persons enumerated on occupied Whole Household Usual Home Elsewhere forms. Of these persons, 75,254 were found on other census returns at the address and 38,737 were not found on other census returns at the address. Of the 38,737 persons who were not found on other returns, 29,302 were selected by the Primary Selection Algorithm

for inclusion in the census. These are persons who were not enumerated by other operations and were added to the census by the Whole Household Usual Home Elsewhere program.

Whole Household Usual Home Elsewhere field procedures

There appeared to be considerable confusion among enumerators concerning how to enumerate the Whole Household Usual Home Elsewhere households. Many of the usual residences for these households were reported as vacant or deleted housing units. This is contrary to the concept of a usual home elsewhere for the Census Day household. Many of the questionnaires completed for the usual home of the Census Day household were completed by a respondent who is not a member of the household. Anecdotal evidence shows many instances of multiple questionnaires filled by the same proxy respondent.

Frequently there were missing and inconsistent data for responses to the introductory questions used to identify Whole Household Usual Home Elsewhere households. Because there is no way to link a census return for the address on the day of the interview with the return for the Whole Household Usual Home Elsewhere address, the missing and inconsistent responses prevent the accurate identification of responses that should have generated a Whole Household Usual Home Elsewhere return.

Recommendations:

- The Census Bureau should take into consideration the small number of persons added to the census by the Whole Household Usual Home Elsewhere probe in judging the potential effectiveness of this program for the 2010 Census.
- We should research whether or not it is a sound practice to add respondent provided addresses, such as the Whole Household Usual Home Elsewhere addresses, without verifying them through a Field Verification operation.
- We recommend that the purpose of the WHUHE program be covered thoroughly in enumerator training to ensure a better understanding of the program and higher quality data. We also recommend investigating possible causes for the large number of vacant WHUHE addresses in addition to the deficiencies in enumerator training.
- The treatment of proxy responses about usual home elsewhere information should be addressed in future censuses. The number of vacant WHUHE addresses and the geocoding results for these addresses may be evidence that the proxy responses about addresses is of poor quality.
- The Whole Household Usual Home Elsewhere procedures need to be more thoroughly covered in enumerator training to ensure a better understanding of the program and higher quality data.

- We recommend incorporating edits into future interactive electronic enumeration devices to detect and correct inconsistent data problems as the data are being collected.
- We recommend creating a mechanism to link each Whole Household Usual Home Elsewhere return with the census return that generated it. This may allow us to design new quality assurance processes and will better enable future evaluations of this program.

1. BACKGROUND

This evaluation focuses on the results of the Whole Household Usual Home Elsewhere (WHUHE) probe from Census 2000. The WHUHE probe is a program used to determine if all members of a household on the day of the interview have another residence where they live most of the time. This probe is accomplished by implementing a set of screening questions from the Simplified Enumerator Questionnaire (SEQ). The SEQs were used in several enumerator operations including Nonresponse Followup (NRFU), Coverage Improvement Followup (CIFU), List/Enumerate (L/E) and Update/Enumerate (U/E). In cases where a household indicated that all household members had another residence where they lived most of the time, we collected census data for all household members at their Census Day address or “usual residence”.

The objective of this evaluation is to determine how effective the WHUHE probe is by looking at the number of persons the program adds to the census as well as their demographic characteristics. This will help us assess the program’s value in reducing the differential undercount. It will also look at the additional workload created by the WHUHE probe and whether the screening questions or form design issues may be causing confusion for respondents or enumerators.

1.1 1990 Census and Tests

In 1990 there was a screening question on the census questionnaire to identify households that had more than one residence. This screening question was included on both respondent filled questionnaires and enumerator questionnaires. When a household indicated that all household members had another residence where they lived most of the time, a WHUHE search record was produced.

This search record collected census data for the household as well as the address for their “usual residence.” These search records went to the search/match operation where they were geocoded and matched to the Address Control File. Ultimately the persons on the search record were compared to persons on the census questionnaire for the “usual residence.” If they were not present or there was no other census questionnaire, they were added to the census.

The 1990 evaluation results for this program are documented in the publication, “Programs to Improve Coverage in the 1990 Census.” About 375,000 WHUHE search records were processed, resulting in the addition of an estimated 163,000 persons. At least one person was added at about 23 percent of the WHUHE search addresses. The evaluation estimated a high erroneous enumeration rate among the added persons but the standard error on the estimate was very high. Demographic characteristics of persons added by this program were analyzed to assess its value in reducing the differential undercount. The Search/Match operation (of which the Whole Household Usual Home Elsewhere probe was a part) added a higher percentage of persons from demographic groups that are traditionally undercounted during the census than were enumerated in the 1990 census overall. These groups included Black males and persons in

the 18-24 age group. This indicates that Search/Match contributed to adding missed persons in these race categories. The 1990 evaluation was based on a sample of search records and required a huge clerical sampling and keying operation.

No similar program was included in the Census 2000 dress rehearsal.

1.2 Census 2000

The use of a WHUHE probe as a coverage improvement program was not pursued during the 1990s in the census testing programs for the Census 2000. The WHUHE probe was added to the Census 2000 design as a possible way to improve the coverage of persons with multiple addresses and to address possible public concerns about being counted at an address other than the one visited in NRFU or CIFU.

During NRFU and CIFU, and as part of the L/E and U/E operations, respondents were asked whether or not the address is a seasonal or vacation home. If it was a seasonal or vacation home the enumerator reported the unit as a vacant unit on the labeled SEQ for that unit. The respondent was also asked to provide information on their “usual residence” (that is, their Census Day address) and the enumerator completed a blank unlabeled questionnaire for that Census day address.

The blank unlabeled SEQ was processed as a “non-ID” form. The Census Bureau received a respondent provided address on questionnaires from various field operations. The non-ID process was the operation which assigned geocodes and Census ID numbers to these addresses so that the questionnaires could be integrated into the census data processing.

The Geography Division (GEO) attempted to match the address on each non-ID form to housing units already on the Master Address File (MAF). If no matching address was found, GEO attempted to geocode the address. Once an SEQ was matched or geocoded it was assigned a Census ID number. Any geocoded address not found on the MAF was potentially assigned to the Field Verification operation. Addresses sent to Field Verification were added to the census if the Field Verification verified it was a valid housing unit. Addresses intended for Field Verification, but processed too late to be included in Field Verification were added to the census without any verification.

2. METHODOLOGY

This evaluation uses the Decennial Response File (DRF2) to identify how often a WHUHE SEQ should have been generated and also to obtain household level and person level data for the WHUHE households. A non-ID file provided by the Decennial Systems and Contracts Management Office (DSCMO) is used to identify the WHUHE SEQ returns generated and whether the addresses from those returns could be matched to addresses already on the Decennial Master Address File (DMAF) or geocoded if a match could not be found.

2.1 Identifying returns that should have generated a WHUHE return

During NRFU and CIFU, and as part of the L/E and U/E operations, respondents were asked whether or not the address was a seasonal or vacation home. If it was a seasonal or vacation home, the enumerator treated the unit as a vacant unit and completed the labeled SEQ for that unit. Those labeled SEQs that should have generated a WHUHE return have been identified by the responses to the introductory questions S2, S3, S4, the respondent information Item R3, the interview summary Item A on the SEQ and the Decennial Response File (DRF) variable RSOURCE. Question S2 determines if the respondent or anyone in the household lived there on Census Day. Question S3 determines if the unit is a vacation or seasonal home, or only occasionally occupied by the household. Question S4 determines if the unit was vacant or occupied by a different household on Census Day. Respondent information Item R3 gives information on whether the respondent lived in the unit on Census Day, moved in after Census Day, or is a neighbor or other proxy. Interview summary Item A identifies the occupancy status of the unit on Census Day. Enumerator instructions on how to complete the questionnaires for a WHUHE household were provided on the enumerator job aid Card J (see Appendix A for an example of Card J).

We used the following criteria to identify those questionnaires that should have generated a WHUHE return:

Interview Summary Item A = 4, Vacant - Usual home elsewhere

S2 = Yes or Blank

S3 = Yes

S4 = Blank

R3 = "Lived here on April 1,2000" , "Moved in after April 1, 2000" or Blank
RSOURCE not equal to 20(NRFU WHUHE) or 21(NRFU In-Mover)

OR

Interview Summary Item A = 3, Vacant - Regular

S2 = Yes

S3 = Yes

S4 = Blank

R3 = "Lived here on April 1,2000" , "Moved in after April 1, 2000" or Blank
RSOURCE not equal to 20(NRFU WHUHE) or 21(NRFU In-Mover)

Note that question S4 must be blank, since S4 should not be answered if question S3 is filled. Also, we excluded all returns for which a neighbor or other non-household member responded. The number of returns filled by a neighbor or other non-household member was 73.5 percent of the total number of forms that otherwise met the criteria above. We believe that most of these proxy filled returns should not have generated a WHUHE return because a proxy respondent would lack sufficient knowledge about the current occupant's census day address.

2.2 Identifying WHUHE returns

The DSCMO provided a non-ID file extract that contains data records from the non-ID process that have the interview summary Item E (Usual Home Elsewhere) marked. This file contains data for approximately 154,000 WHUHE addresses. The file also contains information on the geocoding and matching of addresses to the MAF. The file identifies the following categories of addresses: 1) matched to an existing MAF ID, 2) no MAF ID (address not geocoded), 3) matched to MAF ID, late add but not in Field Verification, and 4) in Field Verification universe. There were 61,324 returns in the third category of which 54,680 had addresses added to the DMAF after the June 2000 update. Those addresses in the third category added to the DMAF after June 2000 are treated as being geocoded but not matched to an existing MAF ID. The remaining addresses in that category are treated as being matched to an existing MAF ID. This was done because we assumed that new addresses added to the DMAF in the June update or earlier would be eligible for the Field Verification if they were not matched to an existing MAF ID.

For addresses that could be geocoded in time for Field Verification, the Field Verification results are provided. For addresses that matched to a housing unit on the DMAF we linked the Census ID from the non-ID file to the corresponding Census ID on the DRF2 and obtained household level and person level data for the WHUHE households.

There was no WHUHE return found on the DRF2 for 461 WHUHE addresses, although there were returns for these addresses from other operations. In addition, there were no census forms from any operations found on the DRF2 for 2,212 WHUHE addresses. Of these 2,212 addresses, 1,937 were identified as “kills” in the DMAF. Kills are addresses that were deleted as a result of address development activities. These 1,937 deleted addresses are not included in any tables in the results section. Also included in those 2,212 addresses are 40 addresses identified as group quarters (GQ) addresses. Group quarters census forms are not included on the DRF2 and are excluded from the results.

We also found multiple WHUHE returns for some unique Census IDs in the non-ID file. To derive the results in Tables 4-6 we selected a unique WHUHE return from among the multiple returns by choosing an occupied return over a vacant return. If there was more than one return for an address that was occupied, we selected the return with the earliest processing date.

2.3 Identifying persons enumerated on WHUHE returns

Many persons on WHUHE questionnaires were also found on other census forms. Also, some persons on WHUHE returns who were not found on other census forms were not selected by the Primary Selection Algorithm (PSA) for inclusion in the census. The PSA is a program designed to select (or not select) a person record for inclusion in the census. The PSA is designed to handle situations where there are multiple responses to the census and also the possibility that different households (or persons within a household) may fill out a census form for the same

address. To identify the persons added to the census by the WHUHE program, we counted only those persons who were not found on other census forms *and* who were selected by PSA for inclusion in the census. To identify the persons who were included on other census forms, we used a variable on the DRF2 created in the PSA process that tells us if a person is matched to a person on another census form. If a person on a WHUHE questionnaire is matched to a person on another form, then we know that the person was not counted in the census solely by the WHUHE program.

3. LIMITATIONS

There are several limitations to this evaluation study. One limitation is that there is no way to identify addresses in the non-ID file that were geocoded separately from addresses that matched to a housing unit already on the MAF. We attempted to identify addresses that were geocoded (but not verified) using the methodology described in section 2.2. We also attempted to use the MAF source variables to identify these addresses but found those to be unreliable.

There are missing data for some of the introductory questions, S2 in particular (Did you or anyone in this household live here on Saturday, April 1, 2000?). This makes it difficult to identify the questionnaires that should have generated a WHUHE return. In many cases the respondent for these addresses was a neighbor or other proxy. In some cases these proxy filled returns probably should not have generated a WHUHE return, but many of them did. A non-systematic review of respondents identified many instances of multiple questionnaires being filled by the same proxy respondent.

Enumerators did not always correctly follow the skip patterns for the introductory questions. In some cases this makes it difficult, if not impossible, to determine the intent of the respondent. There were sometimes inconsistencies in the answers to the introductory questions. For example, a respondent may answer yes to introductory question S2 (someone from the current household lived here on Census Day), and fill introductory question S4 as “Vacant” or “Occupied by a different household”. The information from the introductory questions was sometimes inconsistent with the interview summary items pertaining to occupancy status. This made it difficult to correctly identify returns that should have generated a WHUHE return as well as the WHUHE returns themselves.

There are also missing data for some interview summary items. If the interview summary Item A, which identifies the occupancy status on Census Day, is missing we were not able to determine the occupancy status of an address on Census Day. If the interview summary Item C, which identifies the reason an address is vacant, is missing we were not able to determine the reason an address is vacant. If the interview summary Item E (Usual Home Elsewhere) is inadvertently left blank when it should be filled, the return would not be included in the non-ID file of WHUHE returns that was provided by DSCMO. If interview summary Item E is filled when it should be blank, the return may be incorrectly included in the file of WHUHE returns. Finally, the respondent information Item R3 is sometimes left blank. If this is blank, we were

not able to determine if the respondent was a member of the current household or was a neighbor or other proxy.

A final limitation is that there is no way to link a WHUHE return to the questionnaire that generated it. Even though both returns are completed by the same enumerator at the same time, there is no way to link the two returns, since the returns are for different addresses and the WHUHE return is completed from a blank, unlabeled SEQ.

4. RESULTS

4.1 Questionnaires that should have generated a WHUHE questionnaire

Table 1 shows the number of questionnaires that should have generated a WHUHE questionnaire for a household’s usual place of residence by census operation. Tables B.1 - B.4 in Appendix B show a summary by state, Regional Census Center (RCC) and type of enumeration area (TEA) of the questionnaires that should have generated a WHUHE questionnaire by census operation.

Questionnaires that should have generated a WHUHE questionnaire for a household’s usual place of residence by census operation (Table 1)

Census operation	Number of questionnaires	Percent of total	Percent of operation universe
Nonresponse Followup	90,478	79.5	0.23
Coverage Improvement Followup	10,410	9.2	0.15
Update/Enumerate	9,546	8.4	0.92
List/Enumerate	845	0.7	0.20
Other operations	2,528	2.2	
Total	113,807		

Using the criteria defined in section 2.1, 113,807 questionnaires filled by census enumerators for the point of contact address should have generated a WHUHE return. More than 90,000 returns, or approximately 80 percent of the total, were from Nonresponse Followup. In addition to those 113,807 SEQs, another 330,970 additional questionnaires appear to be cases that could have generated a WHUHE return, but were completed by a neighbor or other proxy. This appears to be the result of enumerator errors. Most of the questionnaires completed by a proxy respondent probably should not have generated a WHUHE return, but in some cases they did. While it was not possible to match the WHUHE return to the questionnaire that generated it, we did find WHUHE returns that were completed by neighbors or other proxy.

Among the 113,807 questionnaires that should have generated a WHUHE return, approximately 6,855 had respondent information (Item R3) marked as “moved in after Census Day”. Most of these returns had the introductory question S2 marked as Yes (someone in the household lived there on Census Day), so it appears that Item R3 may have been marked as “moved in after

Census Day” in error.

4.2 Questionnaires completed for WHUHE households at their usual place of residence

Table 2 shows the non-ID processing results for questionnaires completed for WHUHE households for their usual place of residence. A total of 151,775 blank questionnaires were completed for WHUHE households for their usual place of residence. Of these returns, 58,027 matched to an existing address on the MAF. Only 606 WHUHE returns were geocoded and sent to Field Verification. Another 54,680 returns were geocoded, but not in time to be sent to Field Verification. Most of these addresses were added to the census without verification in the field. More than 63 percent of these addresses were provided by proxy respondents.

Matching results for the addresses of WHUHE household’s usual place of residence (Table 2)

Matching status	Number of questionnaires	Percent of total	Percent completed by neighbor or other proxy
Matched an existing MAF ID	58,027	38.2	30.0
Geocoded and sent to Field Verification	606	0.4	23.4
Geocoded and not sent to Field Verification	54,680	36.0	63.1
Not matched or geocoded	38,462	25.3	32.2
Total	151,775		42.5

Table 3 shows the Field Verification results for addresses of WHUHE households at their usual place of residence. There were 477 unique addresses among the 606 WHUHE questionnaires included in the Field Verification.

Field Verification results for the addresses of WHUHE household’s usual place of residence (Table 3)

Field Verification results	Number of addresses	Percent of total
Verified	246	51.6
Deletes	170	35.6
Duplicates	58	12.2
Field Verification results not reported	3	0.6
Total	477	

4.3 Housing unit status for WHUHE addresses

Table 4 shows a summary of housing unit status for WHUHE addresses. There were 111,130 unique addresses among the 113,313 matched or geocoded WHUHE questionnaires included in Table 2 of the previous section. A total of 228 of these addresses were determined to be duplicates or non-existent housing units by Field Verification. This leaves 110,902 addresses that should be represented on the DRF2. These addresses include all matched or geocoded

housing unit addresses that were not deleted in the address updating operation (that is, “kills” on the DMAF, deletes in Field Verification, or duplicates in Field Verification). About half of these WHUHE addresses were enumerated by another procedure (that is, the DRF2 included another return at this address).

- Nearly 55,000 WHUHE addresses were not enumerated by another procedure. Most of these represent additions to the census not confirmed by a field operation.
- More than 71 percent of those were reported to be vacant housing units. Interviews for more than 36 percent of these vacant housing units not enumerated by another procedure were completed with proxy respondents who provided addresses for two or more WHUHE households.
- The addresses not enumerated by another procedure include 235 WHUHE addresses not represented on the DRF. Of these 235 addresses, 203 were enumerated as vacant and 26 were enumerated as occupied.
- Of those WHUHE addresses enumerated by another procedure, 14.4 percent were reported to be vacant or non-existent (delete).¹

Table 4 also shows the proportion of returns that were completed by a proxy respondent. About 69 percent of proxy respondents for the returns in Table 4 reported vacant addresses.

There appeared to be considerable confusion among enumerators concerning how to enumerate the WHUHE households. There were considerable missing and inconsistent data for responses to the introductory questions used to identify WHUHE households. Many of the usual residences for these households were reported as vacant or deleted housing units. This is contrary to the concept of a usual home elsewhere for the Census Day household. Many of the questionnaires completed for the usual home of the Census Day household were completed by a respondent who is not a member of the household. The interviews for about 28 percent of the WHUHE households were completed with proxy respondents who reported addresses for two or more WHUHE households.

¹ The occupancy status of addresses is obtained from the WHUHE census form and may not be the same as the final census status for the address.

Summary of enumeration results for WHUHE addresses (Table 4)

	Number of addresses	Percent of total	Percent completed by neighbor or other proxy
WHUHE addresses enumerated by another procedure	55,987		31.7
Occupied WHUHE returns	46,121	82.4	24.4
Vacant WHUHE returns	7,952	14.2	69.7
Deleted WHUHE returns	86	0.2	67.4
WHUHE returns of unresolved status	1,828	3.3	46.8
WHUHE addresses not enumerated by another procedure	54,915		61.5
WHUHE address was occupied	12,341	22.5	20.0
WHUHE address was vacant	39,267	71.5	76.2
WHUHE address was deleted	161	0.3	68.3
Status of WHUHE address was unresolved	3,146	5.7	41.1
Total WHUHE addresses enumerated	110,902		46.5

4.4 WHUHE addresses enumerated by another procedure

The data in Table 5 summarize the relationship between the status of the WHUHE return and the results of the other procedures that enumerated those WHUHE addresses.

- For more than 70 percent of the WHUHE addresses with occupied WHUHE returns, all persons on the WHUHE return were completely enumerated by another procedure.
- For WHUHE addresses with vacant WHUHE returns, all other procedures yielded an enumeration of vacant/delete/unresolved more than 70 percent of the time.
- For WHUHE addresses with WHUHE returns of unresolved status, at least one other procedure yielded an enumeration of occupied 38.2 percent of the time.

Enumeration results for WHUHE addresses enumerated by another procedure (Table 5)

	Number of addresses	Percent of total
Total	55,987	
WHUHE addresses with occupied WHUHE returns	46,121	
All persons on the WHUHE return were completely enumerated by another procedure	32,690	70.9
Some, but not all persons on the WHUHE return were enumerated by another procedure	3,256	7.1
All other returns yielded an enumeration of vacant/delete/unresolved	3,679	8.0
All persons on the WHUHE return were not enumerated in any other occupied households	6,496	14.1
WHUHE addresses with vacant WHUHE returns	7,952	
At least one other return yielded an enumeration of occupied but not in the same PSA household	2,321	29.2
All other returns yielded an enumeration of vacant/delete/unresolved	5,631	70.8
WHUHE addresses with deleted WHUHE returns	86	
At least one other return yielded an enumeration of occupied but not in the same PSA household	49	57.0
All other returns yielded an enumeration of vacant/delete/unresolved	37	43.0
WHUHE addresses with WHUHE returns of unresolved status	1,828	
At least one other return yielded an enumeration of occupied but not in the same PSA house	698	38.2
All other returns yielded an enumeration of vacant/delete/unresolved	1,130	61.8

4.5 Results for persons enumerated on WHUHE returns

Table 6 shows a summary of persons enumerated through the WHUHE program by whether or not they are found on other returns.

- There were 113,991 data defined persons on occupied WHUHE returns.
- Of the 113,991 data defined persons on occupied WHUHE returns, 66 percent were found on other forms.
- A total of 29,302 persons enumerated on WHUHE returns were enumerated in the census and would not have been enumerated otherwise.

- Over 93 percent of those persons who answered the Hispanic origin question reported that they were of non-Hispanic origin.
- Over 90 percent of those persons reporting a race reported that they were White.

Table B.5 in Appendix B shows the demographic characteristics of these persons enumerated through the WHUHE program.

Persons on WHUHE returns by whether or not they are found on other returns (Table 6)

	Number of persons	Percent of total
Total	113,991	
WHUHE persons found on other forms	75,254	66.0
WHUHE persons not found on other forms	38,737	34.0
Selected by PSA	29,302	75.6
Not selected by PSA	9,435	24.4

5. CONCLUSIONS AND RECOMMENDATIONS

The purpose of the WHUHE probe is to count persons in the census who might be missed because they have another residence where they live most of the time. The WHUHE probe added 29,302 persons to the census who would not have been enumerated otherwise. The number of persons added to the census is very small when compared to the number of WHUHE addresses identified and the resources expended on this operation. It is only 25.7 percent of the persons enumerated on WHUHE forms. Nearly three quarters of the persons enumerated on WHUHE forms were found on other returns or not selected by the PSA. The WHUHE probe also generated a large number of census returns for vacant housing units (WHUHE addresses should not be vacant by definition of a usual home elsewhere). The WHUHE probe provided relatively little utility for the costs incurred. **Consideration should be given to whether or not the small number of persons added to the census are worth the resources expended.**

For more than 90 percent of WHUHE addresses that were not enumerated by another procedure, the housing unit was an unconfirmed addition to the census that was not included in Field Verification. **We should research whether or not it is a sound practice to add respondent addresses to the census without verifying them through the Field Verification operation.**

The WHUHE probe generated a large number of vacant WHUHE returns. This may happen for two different reasons. It may be that enumerators were attempting to communicate something about the status of the housing unit that was not consistent with the response choice available on the questionnaire. Alternatively, enumerators may have been confused about the procedures to follow for a WHUHE household. Neighbors or other proxy respondents may have provided incomplete or erroneous information for the WHUHE return. **We recommend that the purpose of the WHUHE program be covered thoroughly in enumerator training to ensure a better understanding of the program and higher quality data. The treatment of proxy responses about usual home elsewhere information should be thoroughly addressed in future censuses. We also recommend investigating possible causes for the large number of vacant WHUHE addresses in addition to deficiencies in enumerator training.**

The WHUHE probe frequently generated responses that were inconsistent within a census form. Also, enumerators sometimes did not correctly follow the skip patterns for the screening questions. **We recommend incorporating edits into the future electronic enumeration device to detect and correct these problems as the data are being collected.**

Finally, it would be very useful to be able to link the WHUHE return with the census return that generated it. This would give us more information about some of the problems with the program, such as the large number of vacant returns generated by the program and the large number of returns completed by neighbor or other proxy. One possible way to do this is to enter the Census ID of the housing unit that generates the WHUHE return onto the WHUHE return itself.

REFERENCES

Hogan, Howard (2001). Request for a File Containing Normalized Matching and Geocoding Results for Questionnaires from the Non-ID Process. Memorandum prepared for Michael Longini, Chief, Decennial Systems and Contracts and Management Office, U.S. Bureau of the Census, April 23, 2001 .

Longini, Michael J. (2001). Normalized Matching and Geocoding Results for Enumerator Questionnaires from Non-ID'd Processing. Memorandum prepared for Howard Hogan, Chief, Decennial Statistical Studies Division, U.S. Bureau of the Census, May 7, 2001 .

U.S. Bureau of the Census (1993), 1990 Census of Population and Housing, Evaluation and Research Reports: Programs to Improve Coverage in the 1990 Census , 1990 CPH-E-3.

APPENDICES

Appendix A

INTRODUCTION	
S1.	<p>Hello, I'm (Your name) from the Census Bureau. (Show ID card.) Is this (Read address)?</p> <p><input type="checkbox"/> Yes - Continue with question S2</p> <p><input type="checkbox"/> No - Ask: Can you tell me where to find (Read address)? <i>END INTERVIEW</i></p>
S2.	<p>I'm here to complete a census questionnaire for this address. It should take about 7 minutes.</p> <p>This notice (Hand respondent a Privacy Act Notice) explains that your answers are kept confidential.</p> <p>Did you or anyone in this household live here on Saturday, April 1, 2000?</p> <p><input type="checkbox"/> Yes - Continue with question S3 <input type="checkbox"/> No → Skip to question S4</p>
S3.	<p>Is this (house/apartment/mobile home) a vacation or seasonal home, or only occasionally occupied by your household?</p> <p><input type="checkbox"/> Yes → Skip to items A, B, and C in the "Interview summary" block and refer to Card J.</p> <p><input type="checkbox"/> No → Skip to S5</p>
S4.	<p>On April 1, 2000 was the unit -</p> <p><input type="checkbox"/> Vacant → Skip to items A, B, and C in the "Interview Summary" block and refer to Card K.</p> <p><input type="checkbox"/> Occupied by a different household? Using a knowledgeable respondent, complete this questionnaire for the Census Day household and refer to Card K.</p>
S5.	<p>How many people were living or staying in this (house/apartment/mobile home) on April 1, 2000?</p> <p><input type="text"/> Number of people</p>

RESPONDENT INFORMATION		
<p>R1. Enter respondent's name.</p> <p>First name <input style="width: 100%;" type="text"/></p> <p>Last name <input style="width: 100%;" type="text"/></p>	<p>R2. In case we need to contact you, what is your telephone number and the best time to call?</p> <p>Area code Telephone number <input style="width: 30px;" type="text"/> - <input style="width: 30px;" type="text"/> - <input style="width: 30px;" type="text"/></p> <p><input type="checkbox"/> Day <input type="checkbox"/> Evening <input type="checkbox"/> Either</p>	<p>R3. Respondent -</p> <p><input type="checkbox"/> Lived here on April 1, 2000</p> <p><input type="checkbox"/> Moved in after April 1, 2000 (Refer to Card K)</p> <p><input type="checkbox"/> Is neighbor or other</p>

INTERVIEW SUMMARY																											
<p>A. Status on April 1, 2000</p> <p><input style="width: 100%;" type="text"/></p> <p>1 = Occupied 2 = Occupied - Continuation 3 = Vacant - Usual home elsewhere 5 = Demolished/Burned out 6 = Cannot locate 7 = Duplicate 8 = Nonresidential 9 = Other (open to elements, condemned, under construction)</p>	<p>B. POP on April 1, 2000</p> <p><input style="width: 100%;" type="text"/></p> <p>01-97 = Total persons 00 = Vacant 98 = Delete 99 = POP unknown</p>	<p>C. VACANT - Which category best described this vacant unit as of April 1, 2000?</p> <p><input type="checkbox"/> For rent <input type="checkbox"/> For sale only <input type="checkbox"/> Rented or sold, not occupied <input type="checkbox"/> For seasonal, recreational, or occasional use <input type="checkbox"/> For migrant workers <input type="checkbox"/> Other vacant</p>	<table style="width: 100%; text-align: center;"> <tr> <td>D. SP</td> <td>E. UHE</td> <td>F. MOV</td> <td>G. PI</td> </tr> <tr> <td><input style="width: 30px; height: 20px;" type="text"/></td> </tr> <tr> <td>H. REF</td> <td>I. REP</td> <td>J. CO</td> <td>K. TC</td> </tr> <tr> <td><input style="width: 30px; height: 20px;" type="text"/></td> </tr> <tr> <td>L. JIC1</td> <td>M. JIC2</td> <td>N. JIC3</td> <td>O. JIC4</td> </tr> <tr> <td><input style="width: 30px; height: 20px;" type="text"/></td> </tr> </table>	D. SP	E. UHE	F. MOV	G. PI	<input style="width: 30px; height: 20px;" type="text"/>	H. REF	I. REP	J. CO	K. TC	<input style="width: 30px; height: 20px;" type="text"/>	L. JIC1	M. JIC2	N. JIC3	O. JIC4	<input style="width: 30px; height: 20px;" type="text"/>									
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CARD J

Whole Household Usual Home Elsewhere (WHUHE)

A WHUHE situation occurs when you learn that **all of the people** who live at the followup housing unit on Census Day, April 1, 2000 have another place where they live **most of the time**. In other words, the followup housing unit was occupied as a vacation, seasonal, or other **temporary** residence.

For a WHUHE situation, do the following:

- Step 1 • Classify the housing unit as a VACANT-UHE. In the Interview Summary section of the Enumerator Questionnaire, enter "4" for the status code in Item A; enter "00" for the POP count in Item B; and ask the respondent the question in Item C. In most cases, Item C will be marked, "For seasonal, recreational, or occasional use." When these items are filled, the questionnaire is complete and can be turned in to your Crew Leader.
- Step 2 • In addition to the above, if the labeled Enumerator Questionnaire is a D-2(E) (long form), be sure to complete the following specified double underlined housing questions (35, 36, 38-41, and 45a-b). If the unit is "For rent," ask questions 47a-b. If the unit is "For sale only," ask question 56.
- Step 3 • Conduct an interview for the WHUHE household using a blank, unlabeled D-1(E) (short-form) Enumerator Questionnaire.
 - ▶ Enter the complete address of the household's **usual place of residence** in the address area at the top of the Enumerator Questionnaire. If the address does not include a house number and street name, or complete rural route and box number, try to obtain as much address information as you can. **DO NOT ENTER THE NONRESPONSE FOLLOWUP ADDRESS ON THIS FORM.**
 - ▶ Complete all appropriate questions on the questionnaire as if you were interviewing the household at their usual place of residence. In addition to the usual items filled on the Enumerator Questionnaire, enter an "X" in Item E. UHE of the Interview Summary.

NOTE: In this situation, you will have completed two questionnaires at the followup unit.

- The labeled Enumerator Questionnaire should be classified as a VACANT-UHE. No person information should be entered on this form.
- All appropriate questions should be asked and completed on the blank, unlabeled Enumerator Questionnaire for the WHUHE household.

Appendix B

Nonresponse Followup questionnaires that should have generated a WHUHE questionnaire for a household's usual place of residence by state, RCC and TEA (Table B.1)

	Number of questionnaires	Percent of total
Total	90,478	
By state:		
Florida	11,618	12.8
California	9,979	11.0
New York	8,045	8.9
Texas	6,365	7.0
Arizona	5,049	5.6
Pennsylvania	2,486	2.7
Michigan	2,471	2.7
Virginia	2,263	2.5
Georgia	2,257	2.5
Illinois	2,182	2.4
Other states	37,763	41.7
By RCC:		
Atlanta	15,516	17.1
Denver	9,040	10.0
Dallas	8,575	9.5
Charlotte	8,057	8.9
Los Angeles	7,156	7.9
New York	6,834	7.6
Boston	6,751	7.4
Seattle	6,320	7.0
Kansas City	5,831	6.4
Chicago	5,827	6.4
Philadelphia	5,579	6.2
Detroit	4,992	5.5
By TEA:		
Mail Out/Mail Back	72,736	80.4
Update Leave	17,742	19.6

Coverage Improvement Followup questionnaires that should have generated a WHUHE questionnaire for a household's usual place of residence by state, RCC and TEA (Table B.2)

	Number of questionnaires	Percent of total
Total	10,410	
By state:		
Florida	1,058	10.2
California	1,029	9.9
New York	751	7.2
Texas	713	6.8
Arizona	484	4.6
North Carolina	383	3.7
New Jersey	357	3.4
Pennsylvania	339	3.3
Georgia	291	2.8
South Carolina	277	2.7
Other states	4,654	45.4
By RCC:		
Atlanta	1,547	15.0
Charlotte	1,213	11.9
Denver	1,051	10.2
Dallas	1,003	9.7
Philadelphia	897	8.7
Boston	825	8.2
Kansas City	719	7.0
Los Angeles	713	6.9
Seattle	694	6.7
Chicago	629	6.2
Detroit	500	4.9
New York	491	4.7
By TEA:		
Mail Out/Mail Back	6,812	65.4
Update Leave	3,598	34.6

Update/Enumerate questionnaires that should have generated a WHUHE questionnaire for a household's usual place of residence by state and RCC (Table B.3)

	Number of questionnaires	Percent of total
Total	9,535	
By state:		
Pennsylvania	3,554	37.2
Florida	1,060	11.1
Arizona	952	10.0
Wisconsin	735	7.7
California	713	7.5
Texas	483	5.1
New York	372	3.9
New Mexico	364	3.8
Colorado	212	2.2
Minnesota	194	2.0
Other states	907	9.5
By RCC:		
Philadelphia	3,554	37.2
Denver	1,835	19.2
Atlanta	1,112	11.6
Chicago	746	7.8
Los Angeles	709	7.4
Dallas	521	5.5
New York	370	3.9
Charlotte	325	3.4
Kansas City	198	2.1
Boston	106	1.1
Seattle	70	0.7

List/Enumerate questionnaires that should have generated a WHUHE questionnaire for a household's usual place of residence by state and RCC (Table B.4)

	Number of questionnaires	Percent of total
Total	841	
By state:		
Arizona	160	18.9
Vermont	150	17.8
California	92	9.9
Maine	84	9.6
Wyoming	77	9.1
New Mexico	74	8.8
New York	43	5.1
New Hampshire	42	5.0
Utah	33	3.9
Alaska	28	3.3
Other states	62	7.3
By RCC:		
Denver	380	45.0
Boston	319	37.8
Los Angeles	90	10.7
Seattle	40	4.7
Dallas	16	1.9

Demographic characteristics of persons enumerated through the WHUHE program (Table B.5)

	Persons	Percent of total
Total	29,302	
By age:		
Under 5 years	817	2.8
5 to 19 years	2,684	9.2
20 to 29 years	2,407	8.2
30 to 39 years	2,309	7.9
40 to 49 years	2,789	9.5
50 to 64 years	6,000	20.5
65 years and over	7,717	26.3
Missing	4,579	15.6
By Hispanic origin:		
Not Spanish/Hispanic	25,371	86.6
Mexican, Mexican-American, Chicano	889	3.0
Puerto Rican	348	1.2
Cuban	156	0.5
Other Spanish/Hispanic	466	1.6
Missing	2,072	7.1
By race:		
White	24,727	84.4
Black or African American	1,021	3.5
Other Race	1,546	5.3
Missing	2,008	6.8